

WithStand™ Antimicrobial Technology

Frequently Asked Questions

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GENERAL INFORMATION:

Q. What is WithStand™ Antimicrobial Technology?

A. WithStand™ is a new additive technology in the form of a concentrate or compound which imparts antimicrobial characteristics to Class I, II, and III medical devices, medical packaging, and other healthcare and wellness related applications. WithStand™ helps customers enhance the in-service performance and value of the products and devices they supply to the healthcare industry.

Hospital environments are a breeding ground for bacteria and bacterial biofilm growth on plastic medical devices. Microbes such as bacteria, fungi, and algae can cause odor, staining, discoloration, loss of mechanical properties, as well as other detrimental effects on plastic medical devices.

WithStand™ Antimicrobial Technology is formulated with organic and inorganic antimicrobial additives that inhibit microbial growth. PolyOne's compounding and formulation expertise allows us to help you choose a masterbatch or pre-compounded product as you move from R & D to full scale production.

PolyOne WithStand™ solutions include our assistance with your additive choice and dosage; process, product, and specification development; and claims development. These services help to reduce time to market and maintain quality levels for products that require antimicrobial protection.

Q. Why WithStand™ Antimicrobial Technology?

A. WithStand™ Antimicrobial Technology is the latest example of PolyOne's commitment to its healthcare solutions portfolio targeted at specific performance and regulatory challenges faced by the healthcare industry. WithStand™ Antimicrobial Technology helps converters and OEMs more effectively run their businesses and help their customers.

Q. How does WithStand™ Antimicrobial Technology help converters and OEMs more effectively run their businesses and help their customers?

A.

- **Increased speed to market by providing a “one stop” antimicrobial solution** – The WithStand™ Antimicrobial Technology portfolio can offer customers a solution to address their microbial problem from our wide selection of thermoplastics and antimicrobials.
- **Lower product development and R & D costs** – The antimicrobials in WithStand™ have been tested for effectiveness, and our antimicrobial suppliers and analytical laboratories are able to supply additional testing as needed, which reduces the cost of product development. PolyOne can provide R&D runs and scale up to production, further simplifying your development process.
- **Product optimization through knowledge, technology and process expertise** – PolyOne is able to supply both masterbatch and fully compounded materials allowing customers to choose their preferred solution for their application, including the antimicrobial, base polymer, and any other color or functional additives.
- **Consistent product quality utilizing PolyOne GMP production processes, experience, and expertise** – PolyOne’s compounding expertise, coupled with our suppliers’ antimicrobial expertise, allows confidence that PolyOne will deliver a product meeting the agreed specifications.
- **Assistance through the “antimicrobial maze” of requirements including additive choice, product specification, claims development, and testing** – PolyOne’s extensive experience helps our customers in the healthcare market select the best customized solution for their problem.

Q. Is WithStand™ commercially available? If not, when is it expected to be available?

A. WithStand™ is available through a focused market introduction within North America as of May 2010 and will be available in Europe in November 2010 and Asia in March 2011.

Q. Where will WithStand™ be sold (global availability)?

A. WithStand™ Antimicrobial Technology will be available globally per the timing detailed above and available to all geographic markets served by PolyOne globally.

Q. How do I obtain a price quote?

A. To obtain a price quote, please contact your PolyOne sales representative or nearest sales center. Contact information for PolyOne’s sales centers can be found under the “Contact Us” section of www.polyone.com.

Q. What are some important considerations when evaluating an antimicrobial solution?

A. As with any additive, antimicrobials can adversely affect the characteristics of the final product. Each antimicrobial has different limitations for processing temperature. In addition, some additives can discolor under certain conditions. Also, each additive is effective at a different range of concentrations and thus may be appropriate or inappropriate depending upon the particular application.

Each antimicrobial has different features, benefits, and limitations. It is important for you to choose the right antimicrobial and base polymer for each end use application to minimize any potential concerns.

Q. What applications is WithStand™ suited for?

A. The primary application for antimicrobials is in the healthcare industry. Antimicrobials, however, are used in a wide-range of other markets. For example, they are added to plastic toys and household appliances to reduce negative hygienic effects related to bacterial, fungi, and algae growth on the surface of the plastic substrate. There are numerous applications in food packaging, sports equipment, transportation interiors, and many other areas.

Within healthcare, some examples of products that can benefit from antimicrobials include:

- Catheters (urology, CVC, PIC, PICC)
- Injection systems
- IV systems and bags
- Valves
- Wound dressing
- Hospital bedding and furniture
- Dental trays
- Surgical drapes
- Endotracheal tubes
- Medical housings
- Hospital gowns
- Orthopedic devices
- Laparoscopic instruments
- Airway management
- Tracheotomy tube
- Many more medical, dental, and veterinary uses

TECHNICAL & PERFORMANCE HIGHLIGHTS:

Q. What are the technological highlights or unique aspects of WithStand™ Antimicrobial Technology?

A. WithStand™ Antimicrobial Technology includes both organic and inorganic antimicrobial additives. PolyOne’s expertise in compounding and healthcare enables us to contract with leading antimicrobial suppliers in the industry to provide our customers with a range of antimicrobial solutions that can be suitable for many applications. The offerings include several silver-ion based technologies, silane-based additives, nano-silver particles, triclosan, copper, and other organic additives. PolyOne can assist in testing, claims, development, and product support expertise and advice.

Q. What form does WithStand™ come in? What polymers does it work with?

A. WithStand™ is available as a masterbatch concentrate or a pre-compounded polymer and can be based upon a variety of polymers, including:

- Olefins (polypropylene, polyethylenes)
- Polycarbonate
- PVC
- Polystyrene
- ABS
- Acetal
- Polyesters (PET, PBT)
- TPU
- TPEs
- Nylons
- Various Engineered Thermoplastics

GETTING STARTED:

Q. How do I find out more about WithStand™ and how it can help my products?

A. Your PolyOne representative will work with you to evaluate your microbial concerns and identify possible antimicrobial concentrate or compound products that meet your specifications in order for you to serve your customers and the general public.



Call your local PolyOne representative or email us today at WithStand@PolyOne.com.